

GENERAL STATEMENT OF THE WORK OF THE U. S.
FISH COMMISSION EXPERIMENTAL NET, AT
HURON, OHIO, OCTOBER AND NOVEM-
BER, 1894. CLOUD. RUTTER.

The experimental net was set in about 40 feet of water at the end of a string of six nets, extending a little to the east of north from near the base of Cedar Point peninsula, and between Huron and Sandusky, Ohio. It was the western string fished by the Wickham Company of Huron.

The net was of the ordinary size and construction except that the left side of the pot was of 3 1/2 inch mesh, the back 3 1/4 and the right side 3 inches. The tunnel side and bottom were of the ordinary size mesh, 2 1/4 inches.

The net was lifted 8 times. It was intended that it should be lifted every other day, but, on account of storms the time from one lifting to another varied from 2 to six days. A tabular statement of the daily catch is given herewith.

The catch in all pound nets was so light that only a comparative statement with reference to the experimental net and the ordinary net will give an

adequate idea of the working of the former.

For the 22 days during which the F. C. net was fished the Wickham Company caught a total of 1282.9 lbs. per net, the F. C. 316.7 lbs.

One object of the F. C. net was to allow the small fish, especially the small blue and yellow pike (*Stizostedion vitreum*) and the small saugers (*S. canadense*) to escape. Such fish are known commercially as "Soft fish". Those of a lb. weight and less fall into this class, larger ones are called "Hard fish". The total catch per net of "Soft" fish by the Wickham Company for the 22 days was 654 lbs., a little over half (51%) of the entire catch; that of the F. C. net was 27.3 lbs. or a little less than 9% of the catch. The average weight of all *Stizostedion* (blue and yellow pike and sauger) taken by the Wickham Company was ~~about~~ 9.5 oz.; that of the F. C. net full 16 oz. (35 fish weighed 35.8 lbs.) The average weight of the "hard" fish caught by the Wickham Company during the 22 days was 1.7 lbs.; that of the F. C. net 1.5 lbs. The average weight of the "soft" caught by the Wickham Company was 8.8 oz. that of the F. C. net 15.1 oz.

The other main object of the experiment was to see if this net, which would allow the small Stizostedion to escape, would catch herring. The catch of herring in all pound nets was exceedingly light. At only one time during the 22 days was there any considerable quantity of herring in the F. C. net, this was November 8, when 93.5 lbs. were taken. The net had then not been lifted for six days, so that the herring which it caught certainly had plenty of time to escape; that they did not get in merely in the last day would seem to be proved by the quantity (?). That many of the herring did not escape is proven by their averaging smaller than the Wickham herring, if any had escaped they would have been the smaller ones and the average would have been larger. The average weight of all the herring caught by the F. C. net was 11.8 oz.; that of the Wickham Company for the same time was 12.5 oz.

The F. C. net caught a total of 93.7 lbs. of whitefish; the Wickham Company's nets averaged 83.6 lbs. for the same time. The average weight of the F. C. net whitefish was 2.7 lbs.; that of the Wickham Company 2.5 lbs. The catch of whitefish would seem to have no bearing on the efficiency

of the net, as whitefish could not escape through the meshes.

The Wickham Company took a total of 135 lbs. of perch per net for the 22 days, while the F. C. net caught but 4.3 lbs., so it would seem that the F. C. Net was not suitable for taking perch.

lbs.

62.6_{lbs.} per net of whitebass were taken by the Wickham Company's nets while 25.4 lbs. were taken by the F. C. net; the average weight of those taken by the F. C. net was 8.1 oz.; by the Wickham Company 7.7 oz.

No catfish and but few suckers were caught in the F. C. net. I am told that the failure to catch catfish is sometimes due to the heart not being well down on the ground, which may have been the case with the F. C. net. The comparative failure to catch suckers may have been due to the same cause, both being bottom fishes.

The principal theoretical objection to the F. C. net was that it would gill too many fish. I ^{on} find that the gilling was not so bad in the F. C. net as in the ordinary nets. At seven of the times when I saw the F. C. net lifted I saw 47 of the ordinary nets lifted. The following table gives the amount of gilling in each.

	Wickham Co. 47 nets.	F. C., 7 nets, (1 net 7 times).
Stizostedion	2408.	4.
Herring	1.	40.
Perch	41.	0.
Whitebass	2.	9.
Sheephead	6.	36.
Moon-eye	<u>2.</u>	<u>0.</u>
Total	2460.	89.

Average number gilled per net deduced from the
above table.

	Wickham Company.	F. C.
Stizostedion	51.2	0.6
Herring	0.0	5.7
Perch	0.9	0.0
Sheephead	0.1	5.0
Whitebass	<u>0.0</u>	<u>1.3</u>
Total	52.2	12.6

A further note may be made that the average number gilled in the bag was 11.3 with the F. C. and 13.4 with the Wickham Company. Comparing the average number gilled in the bag with the average number gilled in the whole crib we have:

	Average No. gilled in crib.	Average No. gilled in bag.	Per cent gilled in bag.
Wickham Co.	52.2	13.4	26%
F. C.	12.7	11.3	89%

There is an obvious advantage in having the greater number gilled in the bag as they are easily removed when gilled there, while those gilled in the right or left sides are hard to reach and are therefore often not removed. On the other hand in the ordinary net about half of the total number are gilled in the lower corner of the front (tunnel) side and are easily removed. However, those removed from the bag are much less apt to be injured than those removed from the corners mentioned, as the former can be pushed through the mesh while the latter usually cannot.

Daily Catch, Oct. 15-28, Wickham Co.

15 16 17 18 19 20 21 22 23 25 ~~24~~ 26 27 28

White	330	1305	290	1160	790		940	915	500		470	505
Hard	460	600	90	440	225		210	110	405		300	275
Soft	5665	6810	1885	3545	2925		4265	²⁰⁹⁰ 2470	4230		3580	6585
Leaf	40	235	10		35		125	35	50		30	100
W. Box	175	650	60	465	360		850	245	490		360	840
Mult	110	370	55	365	150		485	95	270		420	340
Leaf	5	15		50	10		65	25	5		5	10
Perch	815	240	860	200	905		960	1650	1130		595	485
King	220	250	135	250	270		148	275	353		585	530
S. Head	40	130		20	10		75		70		55	50

Total	7360	10605	3375	8495	5720		8123	5540	7508		6390	9720
net												
long	75	10	33	63	67		109	90	93		93	78
leaf												
on												
net	104.8	132.6	102.6	134.6	86.8		74.5	61.6	80.7		68.7	124.6
total												
without												
soft												
M.D. 20												

Daily Catch, Oct. 24 Mary Nickham Co.

29 30 31 1 2 4 6 7 8 9 12 13 14

White 228 118 37 39 155 430 100 990 695 495 435 430 480

Hard 353 230 150 116 80 28 70 395 425 315 35 205 115

Soft 6025 3590 4035 7925 1685 2710 370 4109 3730 3853 4875 2345 1880

Leaf 40 1085 50 85 100 180 25 15 20

W. Bass 755 375 272 150 155 470 80 220 150 162 70 100 20

Mull 475 845 353 550 483 1500 220 435 415 345 520 265 115

Corp ² ~~1780~~

Orch 1780 1865 1425 775 970 465 80 1215 163 145 135 170 20

Tring 325 217 110 140 370 1470 315 2075 905 640 570 1440 1140

S. Head 175 140 30 30 ~~2~~

Total 10397 8670 6489 4001 7283 1163 9464 6683 5970 6680 4975 8090

net 103 99 66 60 63 122 18 123 74 74 100 139 09

Days 103 99 66 60 63 122 18 123 74 74 100 139 09

leaf 100.8 87.6 97.9 63. 63.5 59.7 64.2 76.9 90.3 86.7 66.8 36.8 60.9

Total with 4362 5300 2427 1868 2316 4573 765 5355 2753 2117 1815 2630 1910

net soft 423 53.0 86.8 31 316 275 425 43.5 37.2 28.6 18.2 18.9 32.4

Daily Catch, Nov. 15 -
15 16 17 20

Wickham Co.

White 80 725-1340-395

Hard 785-253-300 430

Soft 139 2153-2820 2290

Cat

W. Bass 53- 90 120 (?)

Mull 245- 65 245 300

Carp

Pch 25 40 —

Trig 33-1040 1920 130

S. Head

Total 639 4355 6840 3545

Sub Day 29 100 66 75

N.D.

Catch 22 43.6 103.6 47.3

Total

W. Bass 504 2200 4020 1255

N.D.

do 17.4 22. 60.9 16.7

1894

Daily Catch, Oct. 4 - 25, Jabez Wright, Huron O.

Date	4	8	9	10	11	12	13	15	17	19	20	22	23	25
White	36 14				20	45	45	210	220	265	30	155	100	410
Hard	36	130	50	120	85	70	110	160	115	110	15	30	6	98
Soft	1135	2980	1160	5280	9015	2265	5780	3720	2955	1590	210	710	445	1380
Cal		20		10	5	35		25		6		5	3	20
W. Bass	310	160	165	50	50	165	50	100	30	85	40	80	150	180
Mull	160	120	160	350	370	305	20	100	30	95	5	25	30	105
Carp		15	5			10						10		5
Pack	2850	4490	2980	3965	2810	615	1510	530	830	1205	470	960	70	1070
Wing		8			5	10	54	135	110	185	20	60	13	285
S. Head	46	55	95			80	10	20	5			5		6

Total	4526	7992	4515	9455	6060	3600	7579	5020	4283	3539	790	2040	817	3455
net														
Dog	42	44	25	16	19	15	19	41	28	26	15	24	15	45
N.O.														
Catch	107.6	181.5	180.6	570.9	315.9	240.0	398.8	122.4	153	136.1	52.7	60	54.5	76.8

Daily Catch, Oct. 26 - Nov. 13 Jabez Wright

	26	27	29	30	31	1	2	5	7	8	9	12	13
White	120	200	60	65	27	17	10	50	225	170	98	153	50
Hard	35	50	95	12	5	10	5	15	65	105	5	35	40
Soft	410	1250	4185	1605	560	640	295	130	775	687	345	980	405
Leaf	5	10	3	12			6						
W. Bass	75	85	285	50	45	20	30	15		60	5	27	13
Mull	100	90	35	15	55		90	37	80	265	40	80	83
Corp													
Perch	1310	735	1230	760	805	145	55	35	3420	270	45	220	5
King	150	240	55	750	3	110	35	85	1495	235	105	370	420
S. Head	5												

Total	2160	2680	6048	2599	1010	942	520	367	6060	1732	643	1867	638
Net Days	17	13	35	19	16	16	19	9	62	33	12	28	25
D. D. Catch	127	206	172.8	136.8	63.1	58.9	27.6	40.8	97.7	52.5	53.6	66.7	25.5
Total with out soft	1430	1863	794	450	302	225	237	528	570	45	248	293	293
N.D. do =	110	171.3	53.2	22.3	28.1	18.4	11.8	26.9	85.2	31.7	24.8	32.5	9.3

Daily Catch, Nov. 14-

Jabez Knight

14 16 17 20

White 272 180 255 110

Hard 42 63 75

Soft 683 760 795 835

Cal

W. Bass 22 15

Mull 72 80 80 90

Corp

Pch 100 15 35 15

Hug 695 100 30 10

S. med

Total 1893 1160 1160 1035

Red Day 27 29 20 20

N.D. 70.1 40 68 51.8

Catch 1208 400 366 300

Soft 44.7 13.6 18.3 15

do

1894

Daily Catch, Oct. 27 - Nov. 16, F.C.

27 29 31 2 8 12 14 16



Huron, O.

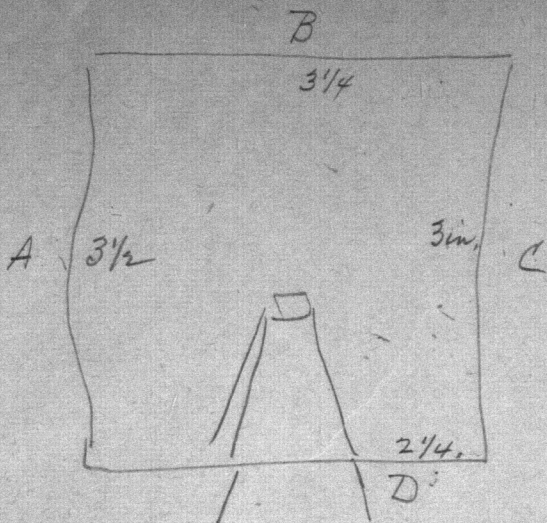
White	39.3	20.7	33.7							93.7
Hard	9.2 1.5	1.5	1.3				2.5			8.5
Soft	10.0 1.5	2.1	2.5 5.8	1.7			2.7			27.3
Coat										
W. Bass	8.4	11.3	2.8	1.6	1.0	1.6	8 .8			25.4
Mull	9.5		1.7			1.1				12.3
Corp										
Perch	1.7					2.6				4.3
Tray	14.9	8.4	9.3	5.8	93.6	8.5	3.2	1.4		145.2
S. Head										
Sturgeon One										

~~77~~ ~~39.9~~ ~~4.9~~ ~~6.3~~ ~~94.5~~ ~~12.8~~ ~~2.2~~ ~~257.4~~

Total with hard	77	39.9								2.2	257.4
Soft	24.3		4.9	6.3	94.5	12.8	2.2				
W. do	46.2	20.0	2.4 3.2	16.8	3.2					1.1	13.2
N.											

Total	87.0	46.4	31.1	6.8	100.3	14.5	5.7	4.9		316.7
net										
Days	1 ² / ₃	2	2	3 ⁴ / ₂	6	4	2	2		22
Caught										
N. Day	52.2	23.2	21.6	3.4	16.7	3.6	2.9	2.5		14.4

→ Total



Bottom = E = $2\frac{1}{4}$ in.

$2\frac{1}{4}$ is customary size, and being a fresh net had not shrunk, Mr. Rutter measured them.

(Older nets knit $2\frac{1}{4}$ had shrunk more or less. Did not measure any.)

Mr. R. measured all other sides and found them correct.

Depth of water. 42 feet

This net was at end of string 150^a, with 6 pots inside of it. Mr. R. thinks that the string extended more in a northerly direction.

Mr. Rutter kept track of 2 strings. 150^a / (which he calls B or second string)

(2)

and the 6 outer pots of string, 151²,
(which he called a or 1st string).

Always lifted 150^c with the F.C. net,
and generally 151² at the same time.

Relations of mesh to fish

Whitefish never gilled in any nets.
One reason might have been they
were always too large. Possibly might
have gilled in larger mesh of F.C. but
didn't try. None gilled naturally.

Oct. 29

Inner end of 151²

Net 1 nearest shore
When are nets lifted? All Huron companies lifted
every other day. Some other places
some nets are lifted daily.

Soft Stizostedion. 1 lb. is No. 1, soft.

NOTES BY CLOUD. RUTTER ON THE FISH COMMIS-
SION POUND AT HURON, OHIO, OCTOBER
AND NOVEMBER, 1894.

/
OCTOBER 27.

In speaking of the different sides of the crib
a is for the 3 1/2 inch side, b for the 3 1/4 inch
side and c for the 3 inch side, d is the tunnel
side 2 1/4 inches.

Net lifted to-day on side b. Saw no fishes
in the net that are not given in the list below,
but the water was rather muddy from a heavy wind.

One small Sheep-Head gilled on side a before
net was lifted.

pick
One blue ^{pick}gilled at lower side of side b alive.

While lifting, a good many small Sheep-Head
gilled in side b, but many of them were released
by shaking the net. (*might go through and might not*)

Five white bass gilled in side b while lifting.

Many of the white bass and sheep-head could be

pushed through the mesh and were thus not injured.

Extra time consumed in relieving gilled fish,
3 minutes.

CATCH.

1 sturgeon, 39 in.	wt.	9.5 lb.	Average 9.5 lb.
14 whitefish	39.3 "	1.8 "	
17 herring	14.9 "	14.1 oz.	
17 white bass	8.4 "	7.9 "	
12 S. vitreum	13.2 "	17.6 "	
3 perch	1.7 "	9.1 "	
5 C. teres	5.7 "	1.1 lb.	
3 M. aureolum	<u>3.8 "</u>	<u>1.3 "</u>	
72 saleable fish	96.5 lb.	1.3 lb.	

1 Mooneye, about 5 oz.

About 325 small sheep-head, (all thrown away. by Mr. Butler)

The 12 S. vitreum were divided as follows:

2 "hard"	weighing 3.2 lb.	Average 1.6 lb.
10 "blue" No. 1,	" 10.0 "	" 1.0 "

From observations and data, given elsewhere, I
get the following results concerning the total catch
of Stizostedion (vitreum and canadense) to-day, not ^{from Wickham's nets}

(Comparing relative weight and catch per net of F. C.
with W. C.'s net.)

including the F. C. net:

	No./m	Weight.	Average.	Aver. No. lbs per net day Per net.	
Hard	191	325 lb.	1.7 lb.	3.6 lb.	
Soft	<u>11,480.</u>	<u>7835 "</u>	<u>9.2 oz.</u>	<u>86.1 "</u>	<i>all Stizostedion</i>
Total	11,671	8160 lb.	11.2 oz.	89.7 lb.	
F. C. Total	12,	13.2 lb.	17.6 oz.	8.0 lb.	

The F. C. pound had fished a little less than two days, which would make the net-day average about as given.

2

OCTOBER 29.

Saw nine nets lifted to-day.

First string.

Net 1, inside net.

In referring to the sides of the pound the letters will be used as with the F. C. net, a for the left side, b for the back, c for the right and d for the tunnell side. *(They lift always on back.)*

Twenty-two *Stizestidion*, 90% canadense, gilled in sides a and c, and 19 *Stizostedion* gilled in

(Water muddy. Couldnt say whether these had gilled side b. before or during lifting, or both)

The 19 removed in one minute. The manner of removing them is by pulling them backward through the mesh, usually pulling off the head or opercles. ✓
5% ~~per~~ liberated alive and uninjured, by pushing them forward through the mesh. (Practice)

Net 2.

56 stizostedion gilled in lower corner c d, removed in five minutes; 17 stizostedion gilled in various places.

10% of above were alive after being liberated.
50% removed by pulling off the head. 50% are thrown away, thus 45% of them being ^{thrown away} dead. ✓

A school of about 40 five-inch whitebass were in this pound. They could readily go through the mesh, but must have followed the lead (a longer note is given on page 193, on the general notes of to-day's date.)

Net 3.

104 stizostedion gilled, 30% in lower corner d a, 50% in lower corner c d. 4 perch gilled. The size of the gilled sauger was 10 1/2 to 13 inches.

Net 4.

70 Stizostedion gilled equally in lower corners ab and cd.

With all the nets usually not over 30% of the gilled fishes have been *S. vitreum*. The proportion in which they were caught to-day was ¹⁸⁶ canadense to 134 vitreum or 35%.

Net 5.

32 Stizostedion and 2 perch gilled, nearly all jerked out in the manner that would pull off their heads.
1 *I. punctatus* gilled or rather caught by the P. spine while the net was being lifted.

String 2. (1075)

Net 2. (Next to inner)

Time required for lifting 17 minutes.

107 Stizostedion and 2 perch gilled at lower edges of a and c, with many scattering.

Net 4.

86 Stizostedion gilled along the lower edges of a and c, with scattering on sides a and c.

Nearly all, about 95%, were alive when the net was lifted, but many were too firmly fastened to

*S. canadense
mud hatcher*

S. vichem

have just got in. The "~~blue~~" is more often dead.
The great number that gill at the corner might be
accounted for by its being the turning place in their
course around the crib (or by its being the first
place to move in lifting?) The water is not clear
enough to enable one to see when the fish gill.

Net 5.

Gilled:

72 Stizostedion.

1 Perch.

1 Sheep-head.
74.

7 of these were dead when the net was lifted.

Net 6.

Time for lifting 17 minutes.

Gilled:

27 Sizostedion.

2 Sheep-head.

1 Mooneye (gilled while lifting)
30

6 Stizostedion dead.

Small cat-fish and sturgeon are thrown back when

convenient.

One man takes a delight in throwing young sheep-head against the stakes.

F. C. NET ADJOINING NET 9, 6.

Time required for lifting 21 minutes, ^{some} extra time required in lifting on side c. (less convenient).
Lifted on side c, two days fishing.

Gilled:

Blue:

Dead 1, side <u>a</u>		
Alive 1, " <u>b</u>)	
)	
Herring 2, " <u>c</u>)	
)	
Wh. Bass 7, " <u>c</u>)	All alive, those
)	on <u>c</u> gilled while
Sh. Head 32, " <u>c</u>)	lifting.
)	
Total 43		

Time required in removing gilled fishes two minutes.

Catch:

8 whitefish	weight	20.7 lb.
" 10 herring		8.4 "
21 whitebass		11.3 "

5 Soft	4.5 lb.
<u>1 Hard</u>	<u>1.5</u> "
45 saleable	46.4 "
138 sheep-head	37.0 "
2 Mooneye	1.1 "

Catch per net day.

	Wickham Co. <i>Wk</i>	Wright. <i>Wk</i>	F. C. <i>Wk.</i>
Whitefish	2.2	1.7	10.3
Herring	3.0	1.6	4.2
Whitebass	$-\frac{9}{7}-$	$-\frac{9}{7}-$	5.6
Soft	58.5	118.7	2.3
Hard	<u>3.2</u>	<u>2.6</u>	<u>.8</u>
Saleable	100.8	172.8	23.2

From the above and from data given on page 193 of general notes, I find the average size of Stizostedion taken to-day to be as follows:

F. C. 16 oz.

Wickham 7.9 oz.

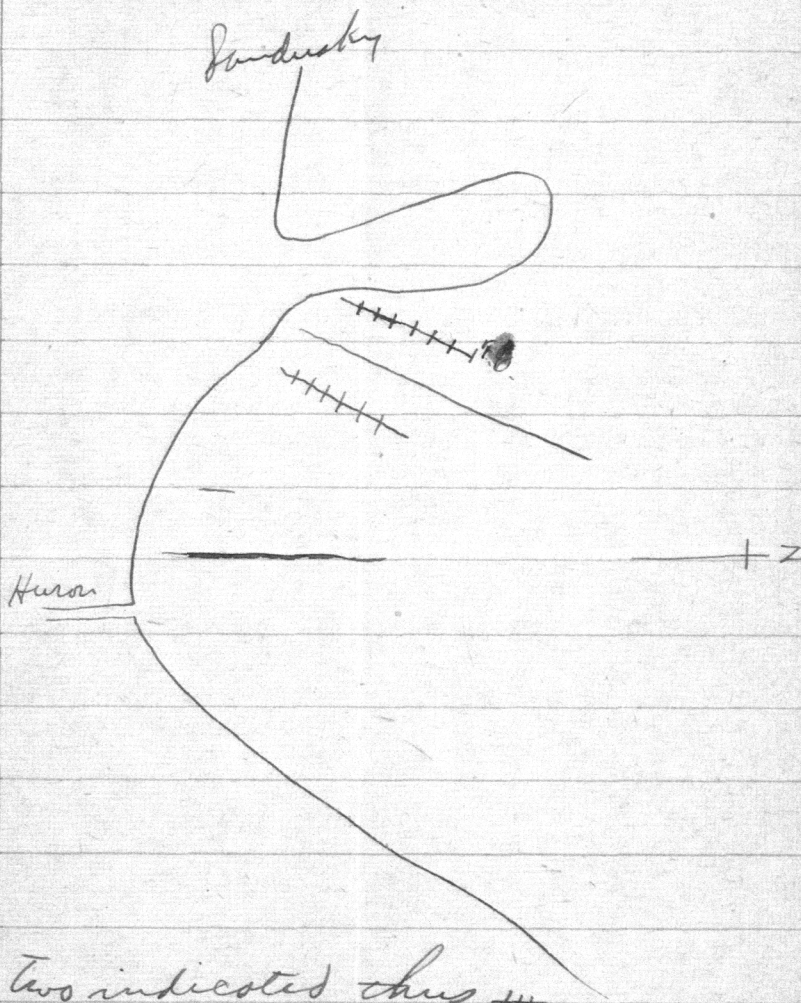
Temperature of bottom (42 feet) 55°. Surface 55.5°
wind, S. E., fair.

3

OCTOBER 31.

Saw nine nets lifted to-day. Total number

RECEIVED
NOV 2 1894



The two indicated thus are
are the ones that I see lifted. The
P.C. net is on the end of the farther
one.

gilled 754,-718 Stizostedion, 28 perch, 5 sheep-head, 2 whitebass and one mooneye. 13 was the smallest number gilled in one net and 198 the largest. The condition of such a large number could not be accurately determined, but about 90% were gilled in front of the pectoral fins, the others just in front of the dorsal fin, between 10 and 20 per cent were dead. Between 5 and 10 per cent gilled in the bag, that is, while they were being dipped out of the net, the favorite places for gilling ^{were} ~~at~~ the lower da and cd corners, and in one net along the bottom near side b, about 30% were scattering.

Rainy yesterday, cloudy to-day. Winds variable but coming off shore most of the time.

F. C. Net.

Lifted on side a, 2 days.

Gilled:

On side a:

Whitebass

Herring

S. vitreum

Sheep-head, about

Sheep-head

(7) { were not all removed by
2 } hand, but all had
2 } been in the meshes, as
shown by the marks behind
the gills. Only 3 were removed
by hand.
(15) Scarcely gilled, removed by shaking net.
3 Removed by hand.

On side c:

S. vitreum

1 dead.

On side d:

S. canadense

1 dead.

Three herring went through the meshes of side a.
while lifting
^

Catch:

13 whitefish	weight	33.7 lb.
9 herring		9.5 "
5 whitebass		2.8 "
1 Hard		1.3 "
2 Soft		2.1 "
1 Redhorse / <i>Moxostoma</i>		1.7 "
		<u>51.1</u>
Per net day		<u>25.5</u>

Compared as to the average catch per net day with

Wickham Co. and ~~Wick~~ Wright.

	F. C.	Wickham Co.	Wright.
Whitefish	16.8 lb.	.6 lb.	1.8 lb.
Hard	.7	3.3	.3
Soft	1.0	61.2	35.0
Cat		.8	
Whitebass	1.4	4.1	2.7
Mullet	.8	5.4	3.5
Perch		21.6	19.0

Sheephead		.6 lb.	
Herring	<u>4.8 lb.</u>	<u>1.6 lb.</u>	<u>.2 lb.</u>
Total	25.5 lb.	97.9 lb.	63.1 lb.
Total without soft	24.5 lb.	36.8 lb.	28.1 lb.
Waste fishes	1.2	61.0	61.0

Note:

The sum of the averages by species is not the same as the total, as the fractions were not kept close enough

Compared as to average weight.

	F. C.	Wickham Co.
Whitefish	2.6 lb.	2.4 lb.
Stizostedion	1.7 "	.67 " .61
Herring	1.6 "	.88 "

above The following is the catch from the ~~net nearest~~ *nine nets referred to*
~~the F. C. net~~ *(string 1500 and nets 4, 5, 8, 6 of 15/2)* which had a much better catch than the
 nets in any other place:

Whitefish 26 lb. Hard 91 lb. Soft 2810 lb.
 Mullet 55 lb. White Bass 155 lb. ^{Perch 425} Herring 70 lb.
 Cat 5 lb. Sheep-head 30 lb. Net days 12. The
 average weights above given are from this lot.

One loon in a net which had 91 gilled fish.

4
NOVEMBER 2.

nets 1, 2, 3 of string 1512;
1, 3, 4, 5, 6 of string 1502.

Saw eight nets lifted.

They had 295 stizostedion and 2 perch gilled, an average of 37 to the net. The favorite places for gilling were at the lower cd corner, along the lower edge of b and in the bag. Most of the latter gill while the net is being lifted. Fewer dead ones.

Wind S. E.

F. C. NET.

Lifted on side b, two days fishing.

One Sauger gilled on side d.

Gilled on side b:

Herring 4.

Sheep-head 1.

Total gilled 5. (not including one gilled on side d)

4 loops in a net which had
24 gilled fish.

Herring all gilled while lifting. Not so many would have gilled, but I had the men hold the net for a short time to see what would happen.

Catch:

8	Herring	5.8 lb.
1	whitebass	.5 "
(1	Sauger	.4) ", gilled on side <u>d</u> .
9	Total saleable	6.3 " (not including the one gilled on side <u>d</u> .)

Catch per net day compared with Wickham Co. and Wright.

	F. C.	Wickham Co.	Wright.
Whitefish		2.5	.6
Herring	2.9	5.7	1.8
Hard		1.2	.3
Soft		23.8	15.6
Cat		1.6	.4
Whitebass	.3	2.8	1.4
Mullet		7.7	4.8
Perch		<u>18.7</u>	<u>2.7</u>
Total	3.3	63.5	27.6
Total with- out soft	3.3	36.4	16.6

Note:

The fish, big and little, do not stay in the

crib till the net is being lifted, but all that can, get out before; at least I have not seen any small ones in the crib. *This refers to the F.C. crib.*

Mr. Walter Wickham suggested that only a space about 4 feet square on the side b should be of large mesh. This, he says, would confine the gilling to a small space and yet allow the smaller fish to escape. No one will try the experiment because he would lose some small fish. However, there does not seem to be much gilling in the present experimental, except in the bag and it is therefore confined to a small space.

The fishermen say that sometimes the Saugers gill a good deal worse than they have been this week, but that this week is worse than usual. *This refers to the ordinary net*

⁵
NOVEMBER 8.

String 150' nets 1, 2, 3, 4, 6

Saw 5 pound nets lifted to-day. They had a total of 313 gilled fish, varying in number from 32 to 164, average 63. On an average 18 were gilled in the bag. The favorite places for meshing were the lower corners da and cd. All but three or four, which were perch and whitebass, were

Stizostedion.

F. C. NET.

Side b, 6 days.

29 were gilled, all herring; 2 on side a, 4 on side b, and 23 in the bag. Two were dead, but fresh.

Catch:

136 Herring	93.5 lb.
6 S. vitreum	5.75 "
<u>2 whitebass</u>	<u>1.00</u> "
144 Saleable	100.25 "
4 Sheep-head	1.1 "

CATCH PER NET DAY.

	Wickham Co.	F. C.
Whitefish	9.4 <i>lb.</i>	
Hard	5.6	
Soft	53.3	.9 <i>lb.</i>
Whitebass	2.0	.3
Mullet	5.6	
Perch	2.2	

Wickham
Co.

72.

Herring	<u>12.2</u> lb.	<u>15.6</u> lb.
Total	90.3	16.7
Waste	15.0	.2

Stormy weather for last six days. For the last two, wind variable, light with snow. Previous four, wind mostly strong from the Lake. To-day wind very strong off the Lake, only part of the nets could be lifted. Temperature of bottom near F. C. net 49.2°.

NOVEMBER 9.

POINTS, MOST OF WHICH WERE BROUGHT OUT IN

A CONVERSATION WITH MR. WICKHAM,

CONCERNING THE F. C. NET, *in relation to the last catch.*

1. The net had not been lifted for six days when it was lifted on the 8th, so the herring which it caught certainly had plenty of time to escape. That they did not get in merely in the last day would seem to be proven by the quantity, ⁽¹⁾ for, counting the time as six days, the rate was about the same (though a little higher) as that of the Wickham Company's;

but, counting the time as three days, which was the time that Wickham Company's nets had fished, the rate would be more than twice his.

2. That many of the herring did not escape would seem further to be proven by the F. C. herring averaging smaller than the Wickham herring, if any had escaped it would have been the smaller ones and thus the average size would have been larger.

3. Before lifting only one herring a day was gilled.

4. Fewer fish were gilled while lifting, that is, gilled in the bag, than were on an average in the ordinary net (F. C. 23; Wickham 28).

the F. C. net, 5. Perch were caught in the ~~other~~ nets adjacent therefore Perch escaped ^{from} the F. C. net. None were found gilled therefore the mesh of the F. C. net is too large for perch.

6. That both species of Stizostedion try to escape is proven by the great number found gilled in other nets. All but six had escaped from the F. C. net. These six were *S. vitreum*.

[or had none been in?]

7. Nearly all of the whitebass had escaped,

(because fewer, 1 to 10 per net, were found in the F. C. net than in others). *Those that were in the net were only of average size, 1/2 lb.*

8. As the perch, Stizostedion, and whitebass escaped before lifting, only such were left as would be kept in by the largest mesh of the F. C. net, which is 3 1/2 inches.

9. *smaller* The suckers might go through, but *the larger ones* ~~some~~ could not, ~~though~~ *N* none were caught.

10. *I am told that* The failure to catch cat-fish is sometimes due to the heart not being well down on the ground, which may be the case with the F. C. net. The failure to catch suckers may be due to the same cause, both being bottom fishes.

11. The size of the mesh would have nothing to do with the amount of whitefish caught, *as they could not go through the mesh.*

6

NOVEMBER 12.

(all but no. 5)

Saw five nets in string 2, lifted. In these five there were 270 gilled fish, an average of 54 to

the net; of these 164 were gilled in the bag, an average of 33 to the net. All but six or eight were Stizostedion, the others being whitebass and perch. In nearly all these nets there were from five to ten dead fish (not gilled) two were whitefish, two or three herring, the others S. vitreum or S. canadense. About two-fifths of the gilled ones, excepting those gilled in the bag, were dead, and about one-fourth of them were not taken from the net, that is, they were left hanging in the meshes. A number of small whitebass and one sheep-head, all about 3 1/2 inches long, were seen, some of the white bass would get fastened in the mesh.

F. C. NET.

4 days fishing. Lifted on side b.

One herring gilled on side a, yet alive when removed. No others removed from the meshes, though two have some scales off as if they had been in the meshes. This one was meshed in front of the dorsal.

Catch:

11^{m.} Herring

4 Perch

Weight

weight
8.5 lb.

2.6 "

2	S. vitreum	1.7 lb.
1	Whitebass	.6 "
<u>1</u>	Mox aureolum	<u>1.1</u> "
19	Saleable Weight	14.5 "
5	Saleable XXX	3.6 " per net day
1	Lota XXX	1.5 "
<u>1</u>	Sheep-head,	<u>.3</u>
2	Waste	1.8 "
1/2	Waste	.45 " per net day

Catch per net, compared with Wickham Co., Wright and
 with nets 1, 2, 3, ~~4~~ and 6, of String 2, ⁽¹⁵⁰⁾ the
 string in which the F. C. net is
 located.

	F. C.	Wickham Co.	Wright.	String 2.
Whitefish		4.35	5.5	3.9
Hard		.35	1.2	2.0
Soft	.43	48.8	35.0)	45.6
Whitebass	.15	.7	1.0)	
Mullet	.27	5.2	2.8	6.3
Perch	.65	1.55	.8	1.2
Herring	<u>2.13</u>	<u>5.7</u>	<u> </u>	<u>1.0</u>

Total	3.6	66.8	13.2	60.0
Waste	.5	7.0		

Average weight of herring:

F. C. .77 lb.

Wickham .88 lb.

Temperature 6.45 A. M.

Air 26°,

9.30 A. M.

Bottom and surface 43.5°

Stormy for last four days, snow, wind off the lake most of the time.

7
NOVEMBER 14.

Saw three nets lifted to-day.

An average of 32 were gilled in the cribs, 15 being in the bag, the others at various places, but a little more collected in the lower corners da and cd. In one net as many as ten were not removed. It is quite difficult to remove those gilled in the middle of sides a or c.

F. C. NET.

Side c, two days.

- meshed* { 1 herring meshed on side a ^{*meshed*} in front of dorsal fins.
 1 S. vitreum meshed in bag (side c while lifting).
Escaped { 1 herring escaped through side a, it was at first
 meshed in front of dorsal fin.
 1 herring escaped through bag.

Catch:

<u>4</u>	Herring	Weight	^{<i>wt.</i>} 3.2 lb.
<u>2</u>	S. vitreum	"	<u>2.5</u> "
6	Total	"	5.7 "
3 per	Net day	"	2.9 "

The catch of the whole string was exceedingly light. Some other boats brought in more fish, as much as 25 lb. of herring to the net.

NOVEMBER 16.

Saw eight nets lifted to-day. There was an average of 13 gilled in each crib, 4.5 being in the bag: All Stizostedion. The exceedingly light

*the 6 of string 1500
and under a 1/2
string 1500*

catch, may account somewhat for the small number being gilled. ~~These eight were the six in string 2 and the outside two in string 1.~~

F. C. NET.

Side b, two days.

None gilled.

Catch:

^{no.} 2 herring	Weight	^{wh} 1.44 lb.
2 whitebass		.75 "
<u>4</u> S. vitreum		<u>2.75</u> "
8 Saleable		4.94
4 Per ^{net} day		2.47
1 sheep-head	⁺ waste, weight	.12

Temperature, surface and bottom 42.4°.

Strong winds off shore for two days.

The average catch for the string was about
14 lb. per day.
^{net}
^